

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
TYLER DIVISION**

Avago Technologies ECBU IP (Singapore)  
Pte. Ltd. and Avago Technologies General IP  
(Singapore) Pte. Ltd.

Plaintiffs,

v.

STMicroelectronics, Inc. and  
STMicroelectronics N.V.

Defendants.

Civil Action No. 6:10-cv-92-LED

JURY

**SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiffs Avago Technologies ECBU IP (Singapore) Pte. Ltd. and Avago Technologies General IP (Singapore) Pte. Ltd. (collectively, “Avago”) file this second amended complaint for patent infringement against STMicroelectronics, Inc. and STMicroelectronics N.V. (collectively, “STMicroelectronics” or “Defendants”) and state as follows:

**THE PARTIES**

1. Plaintiff Avago Technologies ECBU IP (Singapore) Pte., Ltd. is a Singapore corporation, having a place of business at 1 Yishun Avenue 7, Singapore 768923.
2. Plaintiff Avago Technologies General IP (Singapore) Pte. Ltd. is a Singapore corporation, having a place of business at 1 Yishun Avenue 7, Singapore 768923.
3. Upon information and belief, Defendant STMicroelectronics, Inc. is a corporation organized and existing under the laws of Delaware with a principal place of business at 1310 Electronics Drive, Carrollton, Texas 75006.

4. Upon information and belief, Defendant STMicroelectronics, N.V. is a Netherlands corporation with a principal place of business at 39, Chermin du Champ-des-Filles, 1228 Plan-les-Ouates, Geneva, Switzerland.

5. On information and belief, STMicroelectronics, Inc. and STMicroelectronics, N.V. make, use, sell, offer for sale and/or import into the United States, including within the State of Texas and this judicial district, products that infringe directly and/or contribute to or induce infringement by others of United States Patent Nos. 5,686,720, 7,652,661, 7,643,007, 6,172,354 and 7,126,585 (“the Patents-In-Suit” or “the Asserted Patents”).

### **JURISDICTION AND VENUE**

6. This is an action for patent infringement arising under the patent laws of the United States, Title 35, United States Code. Jurisdiction as to these claims is conferred on this Court by 28 U.S.C. §§ 1331 and 1338(a). Avago’s patent infringement claims arise under the United States Patent Laws, 35 U.S.C. § 1 *et seq.*

7. Venue is proper in the Eastern District of Texas under 28 U.S.C. §§ 1391 and 1400(b).

8. This Court has personal jurisdiction over STMicroelectronics, Inc. because it conducts and has conducted business within the State of Texas and within this judicial district. STMicroelectronics, Inc., directly or through intermediaries (including distributors, retailers, and others), ships, distributes, offers for sale, sells, and advertises its products in the United States, the State of Texas, and within this judicial district. On information and belief, STMicroelectronics, Inc. has infringed the Patents-in-Suit, *inter alia*, by purposefully and voluntarily selling optical components, including without limitation its VT5366 Optical Navigational Sensor, to others for use in infringing products with the expectation that those

products will be purchased by consumers in the Eastern District of Texas. On information and belief, these infringing products have been and continue to be purchased by consumers in the Eastern District of Texas. On information and belief, consumers within this judicial district have purchased infringing products, such as the Steelseries Kinzu Optical Mouse Model PN 62011, containing ST Microelectronic's optical components at stores in this judicial district and/or have purchased the products containing infringing optical components via the internet, for example through online retailers, and have had the products shipped into this judicial district. On information and belief, STMicroelectronics, Inc. has thereby committed acts of patent infringement within the State of Texas and, more particularly, within the Eastern District of Texas. Furthermore, on information and belief, STMicroelectronics, Inc. has purposely availed itself of this forum by instituting actions within this judicial district against alleged infringers of its patents.

9. This Court has personal jurisdiction over STMicroelectronics, N.V. because it conducts and has conducted business within the State of Texas and within this judicial district. STMicroelectronics, N.V., directly or through intermediaries (including distributors, retailers, and others), ships, distributes, offers for sale, sells, and advertises its products in the United States, the State of Texas, and within this judicial district. On information and belief, STMicroelectronics, N.V. has infringed the Patents-in-Suit, *inter alia*, by purposefully and voluntarily selling optical components, including without limitation its VT5366 Optical Navigational Sensor, to others for use in infringing products with the expectation that those products will be purchased by consumers in the Eastern District of Texas. On information and belief, these infringing products have been and continue to be purchased by consumers in the Eastern District of Texas. On information and belief, consumers within this judicial district have

purchased infringing products, such as the Steelseries Kinzu Optical Mouse Model PN 62011, containing ST Microelectronic's optical components at stores in this judicial district and/or have purchased the products containing infringing optical components via the internet, for example through online retailers, and have had the products shipped into this judicial district. On information and belief, STMicroelectronics, N.V. has thereby committed acts of patent infringement within the State of Texas and, more particularly, within the Eastern District of Texas. Furthermore, on information and belief, STMicroelectronics, N.V. has willingly litigated patent issues in this judicial district before.

10. Upon information and belief, STMicroelectronics N.V. is the agent and/or alter ego of STMicroelectronics, Inc., and/or through STMicroelectronics N.V.'s actions, including control of the management, policies, and operations of STMicroelectronics, Inc., STMicroelectronics N.V. is making, using, selling, offering for sale and/or importing into the United States optical navigation sensors, including its VT5366 Optical Navigation Sensor, that directly and/or indirectly infringe claims of the Asserted Patents. Upon information and belief, STMicroelectronics N.V. is liable for its own infringing acts and the infringing acts of STMicroelectronics, Inc.

### **BACKGROUND**

11. Avago is a worldwide technology leader in the field of optical navigational sensors. Optical navigational sensors are used in computer input navigational devices such as mice and are used to produce positional signals by comparing images of a work surface as the navigational device and work surface shift positions in relation to each other. Typically such navigational sensors contain an imaging array for capturing images of a work surface, and computational logic for processing two or more of these images in order to determine a relative

motion between the work surface and the input device. Optical navigational devices eliminate the need for mouse pads and offer high precision navigation, pointing and movement.

12. Avago through its predecessors, Hewlett Packard Company and Agilent Technologies, Inc., and through its own work, is a pioneer in the field of navigational sensors. Avago has expended many millions of dollars researching and developing such navigation sensors. These research and development efforts have made Avago a leader in the field of optical navigation sensor technology, having created the first LED mouse in 1999 and the first laser mouse in 2005. The United States Patent and Trademark Office (“USPTO”) has recognized Avago’s and its predecessors’ achievements by awarding numerous patents to Avago and its inventors for product and process innovation in this field.

13. In addition to these Avago patents, Avago also owns other patents in this field. In 2006, Avago acquired ownership of a Microsoft patent relating to navigation sensors.

14. In this action Avago asserts that STMicroelectronics N.V. and STMicroelectronics, Inc. are infringing United States Patent No. 5,686,720, United States Patent No. 7,652,661, United States Patent No. 7,643,007, United States Patent No. 6,172,354 and United States Patent No. 7,126,585, directly and/or indirectly, literally and/or by equivalence. The inventions described and claimed in the Asserted Patents cover a variety of novel improvements in the field of optical navigation technology. In particular, the inventions in the Asserted Patents include fundamental enabling technology for, as well as improvements in the design of, optical navigation sensors and navigation devices comprising such optical navigation sensors that do not require use of a mouse pad. These inventions permit the construction of navigation devices that can accurately detect and measure navigation movements using a wide

variety of work surfaces and under a wide variety of conditions and which do not have the shortcomings of mechanical navigation devices.

15. Upon information and belief, and without limitation, STMicroelectronics N.V.: (1) owns 100% of the stock of ST Microelectronics, Inc. and a majority of the stock of various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein; (2) prepares and submits consolidated financial statements for itself, its wholly owned subsidiary STMicroelectronics, Inc., and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, such consolidated financial statements including the assets, liabilities, results of operations and cash flows of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein; (3) shares common officers and/or directors with STMicroelectronics, Inc., wherein such officers and/or directors supervise the research, development, manufacturing, sales, marketing, product groups, and corporate staff functions of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein; (4) conducts its business through its subsidiaries, including ST Microelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, as a single, global semiconductor company that designs, manufactures, and markets a broad range of semiconductor products, including the infringing products complained of herein; (5) manages this single, global semiconductor company under the direction and control of a Management Board that is supervised by a Supervisory Board, wherein such Supervisory Board controls and directs the policies pursued by the Management Board and the general course of the affairs of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, and

wherein such Supervisory Board has adopted and enforces a charter whereby STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein must seek approval for certain management decisions and/or policies from the Supervisory Board before taking action; (6) prepares product literature and technical manuals for this single, global semiconductor company under the name of “STMicroelectronics”, evidencing a purposeful lack of distinction between STMicroelectronics N.V., STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, including product literature and technical manuals for the products accused of infringement herein, such product literature and such technical manuals being readily available to the public at <http://www.st.com>; (7) directs and/or permits issuance of press releases introducing new products, including the infringing products complained of herein under the name “STMicroelectronics” or “ST”, further evidencing a purposeful lack of distinction between STMicroelectronics N.V., STMicroelectronics, Inc., and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein; (8) (a) is an alter ego of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein and thereby controls the conduct of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein; (b) is an agent of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein and effectively controls the conduct of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, (c) formulates, directs or controls STMicroelectronics, Inc.’s operations and the operations of various other related subsidiaries directly and indirectly

involved in the infringing acts complained of herein; and/or (d) controls the management, policies, and operations of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein.

16. Upon information and belief, STMicroelectronics N.V., as the agent and/or alter ego of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, and/or through its actions including control of the management, policies, and operations of STMicroelectronics, Inc. and various other related subsidiaries directly and indirectly involved in the infringing acts complained of herein, is making, using, selling, offering for sale and/or importing into the United States optical navigation sensors, including its VT5366 Optical Navigation Sensor, that infringe, literally and/or through equivalence, and/or are used to infringe, literally and/or through equivalence, directly and/or indirectly, claims of the Asserted Patents. Upon information and belief, STMicroelectronics N.V. is liable for these infringing acts.

17. Upon information and belief, STMicroelectronics, Inc. is making, using, selling, offering for sale and/or importing into the United States optical navigation sensors, including its VT5366 Optical Navigation Sensor, that infringe, literally and/or through equivalence, and/or are used to infringe, literally and/or through equivalence, directly and/or indirectly, claims of the Asserted Patents. Upon information and belief, STMicroelectronics, Inc. is liable for these infringing acts.

18. Upon information and belief, STMicroelectronics, Inc. and STMicroelectronics N.V. are inducing and/or contributing to the infringement of the Asserted Patents by providing, at a minimum, components that they intend for use in and that are adapted for use in optical



navigation devices and by instructing others on how to incorporate such components into infringing optical navigation devices.

**FIRST CLAIM**

**INFRINGEMENT OF U.S. PATENT No. 5,686,720**

19. Avago incorporates by reference paragraphs 1 - 18 as if fully set forth herein.

20. Avago Technologies ECBU IP (Singapore) Pte. Ltd. ("Avago ECBU") is the owner by assignment of all right, title and interest in and to United States Patent No. 5,686,720 ("the '720 patent").

21. The '720 patent is entitled "Method and Device for Achieving High Contrast Surface Illumination." A true and correct copy of the '720 patent is attached hereto as Exhibit A. On November 11, 1997, the USPTO duly and legally issued the '720 patent, and it was assigned to Hewlett Packard Company. In January 2006, the '720 patent was assigned to Avago ECBU.

22. By virtue of its ownership of the '720 patent, Avago ECBU has the right to sue for infringement of the '720 patent and to recover damages for infringement of such patent.

23. Avago is informed and believes, and on that basis alleges, that STMicroelectronics N.V. and STMicroelectronics, Inc. have directly infringed, actively induced infringement of, and/or contributorily infringed the '720 patent in violation of 35 U.S.C. § 271 by making, using, selling, offering for sale, and/or importing into the United States navigational devices and/or optical sensor components for navigation devices covered by the '720 patent.

24. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '720 patent has been willful.

25. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc. will continue to infringe and willfully infringe the '720 patent unless they are enjoined from doing so by this Court.

26. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '720 patent is irreparably injuring and damaging Avago, and such injury and damage will continue unless STMicroelectronics N.V. and STMicroelectronics, Inc. are permanently enjoined by this Court from further infringement and willful infringement of the '720 patent.

## **SECOND CLAIM**

### **INFRINGEMENT OF U.S. PATENT NO. 7,652,661**

27. Avago incorporates by reference paragraphs 1 - 26 as if fully set forth herein.

28. Avago ECBU is the owner by assignment of all right, title and interest in and to United States Patent No. 7,652,661 ("the '661 patent").

29. The '661 patent is entitled "'Seeing Eye' Mouse for Computer System." A true and correct copy of the '661 patent is attached hereto as Exhibit B. On January 26, 2010, the USPTO duly and legally issued the '661 patent and it is assigned to Avago ECBU.

30. By virtue of its ownership of the '661 patent, Avago ECBU has the right to sue for infringement of the '661 patent and to recover damages for infringement of such patent.

31. Avago is informed and believes, and on that basis alleges, that STMicroelectronics N.V. and STMicroelectronics, Inc. have directly infringed, actively induced infringement of, and/or contributorily infringed the '661 patent in violation of 35 U.S.C. § 271 by making, using, selling, offering for sale, and/or importing into the United States navigation devices and/or optical sensor components for navigation devices covered by the '661 patent.

32. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '661 patent has been willful.

33. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc. will continue to infringe and willfully infringe the '661 patent unless they are enjoined from doing so by this Court.

34. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '661 patent is irreparably injuring and damaging Avago, and such injury and damage will continue unless STMicroelectronics N.V. and STMicroelectronics, Inc. are permanently enjoined by this Court from further infringement and willful infringement of the '661 patent.

### **THIRD CLAIM**

#### **INFRINGEMENT OF U.S. PATENT NO. 7,643,007**

35. Avago incorporates by reference paragraphs 1 - 34 as if fully set forth herein.

36. Avago ECBU is the owner by assignment of all right, title and interest in and to United States Patent No. 7,643,007 ("the '007 patent").

37. The '007 patent is entitled "Method of Operating An Optical Mouse." A true and correct copy of the '007 patent is attached hereto as Exhibit C. On January 5, 2010, the USPTO duly and legally issued the '007 patent and it is assigned to Avago ECBU.

38. By virtue of its ownership of the '007 patent, Avago ECBU has the right to sue for infringement of the '007 patent and to recover damages for infringement of such patent.

39. Avago is informed and believes, and on that basis alleges, that STMicroelectronics N.V. and STMicroelectronics, Inc. have directly infringed, actively induced infringement of, and/or contributorily infringed the '007 patent in violation of 35 U.S.C. § 271

by making, using, selling, offering for sale, and/or importing into the United States navigational devices and/or optical sensor components for navigation devices covered by the '007 patent.

40. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '007 patent has been willful.

41. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc. will continue to infringe and willfully infringe the '007 patent unless they are enjoined from doing so by this Court.

42. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '007 patent is irreparably injuring and damaging Avago, and such injury and damage will continue unless STMicroelectronics N.V. and STMicroelectronics, Inc. are permanently enjoined by this Court from further infringement and willful infringement of the '007 patent.

#### **FOURTH CLAIM**

##### **INFRINGEMENT OF U.S. PATENT NO. 6,172,354**

43. Avago incorporates by reference paragraphs 1 - 42 as if fully set forth herein.

44. Avago Technologies General IP (Singapore) Pte. Ltd. ("Avago General") is the owner by assignment of all right, title and interest in and to United States Patent No. 6,172,354 ("the '354 patent").

45. The '354 patent is entitled "Operator Input Device." A true and correct copy of the '354 patent is attached hereto as Exhibit D. On January 9, 2001, the USPTO duly and legally issued the '354 patent and it was assigned to Microsoft Corporation. In November 2006, Microsoft Corporation assigned all right, title and interests in the '354 patent to Avago General.

46. By virtue of its ownership of the '354 patent, Avago General has the right to sue for infringement of the '354 patent and to recover damages for infringement of such patent.

47. Avago is informed and believes, and on that basis alleges, that STMicroelectronics N.V. and STMicroelectronics, Inc. have directly infringed, actively induced infringement of, and/or contributorily infringed the '354 patent in violation of 35 U.S.C. § 271 by making, using, selling, offering for sale, and/or importing into the United States navigational devices and/or optical sensor components for navigation devices covered by the '354 patent.

48. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '354 patent has been willful.

49. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc. will continue to infringe and willfully infringe the '354 patent unless they are enjoined from doing so by this Court.

50. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '354 patent is irreparably injuring and damaging Avago, and such injury and damage will continue unless STMicroelectronics N.V. and STMicroelectronics, Inc. are permanently enjoined by this Court from further infringement and willful infringement of the '354 patent.

#### **FIFTH CLAIM**

#### **INFRINGEMENT OF U.S. PATENT NO. 7,126,585**

51. Avago incorporates by reference paragraphs 1 - 50 as if fully set forth herein.

52. Avago ECBU is the owner by assignment of all right, title and interest in and to United States Patent No. 7,126,585 ("the '585 patent").

53. The '585 patent is entitled "One Chip USB Optical Mouse Sensor Solution." A true and correct copy of the '585 patent is attached hereto as Exhibit E. On October 24, 2006, the USPTO duly and legally issued the '585 patent and it is assigned to Avago ECBU.

54. By virtue of its ownership of the '585 patent, Avago ECBU has the right to sue for infringement of the '585 patent and to recover damages for infringement of such patent.

55. Avago is informed and believes, and on that basis alleges, that STMicroelectronics N.V. and STMicroelectronics, Inc. have directly infringed, actively induced infringement of, and/or contributorily infringed the '585 patent in violation of 35 U.S.C. § 271 by making, using, selling, offering for sale, and/or importing into the United States optical navigation sensors covered by the '585 patent, and/or navigational devices and/or optical sensor components for navigation devices covered by the '585 patent.

56. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '585 patent has been willful.

57. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc. will continue to infringe and willfully infringe the '585 patent unless they are enjoined from doing so by this Court.

58. On information and belief, STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '585 patent is irreparably injuring and damaging Avago, and such injury and damage will continue unless STMicroelectronics N.V. and STMicroelectronics, Inc. are permanently enjoined by this Court from further infringement and willful infringement of the '585 patent.

**PRAYER FOR RELIEF**

WHEREFORE, Avago prays for judgment:

1. a judicial determination that STMicroelectronics N.V. and STMicroelectronics, Inc. have each infringed, induced the infringement of and/or contributed to the infringement of and each infringes, induces the infringement of and/or contributes to the infringement of the '720 patent, the '661 patent, the '007 patent, the '354 patent and the '585 patent;
2. an order permanently enjoining STMicroelectronics N.V. and STMicroelectronics, Inc. and their officers, directors, agents, assigns and others acting in concert with any of them from infringing, inducing the infringement of and contributing to the infringement of the '720 patent, the '661 patent, the '007 patent, the '354 patent and the '585 patent;
3. an award of damages adequate to compensate Avago for STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '720 patent, the '661 patent, the '007 patent, the '354 patent and the '585 patent;
4. an award of prejudgment interest and post-judgment interest on the damages awarded for STMicroelectronics N.V. and STMicroelectronics, Inc.'s infringement of the '720 patent, the '661 patent, the '007 patent, the '354 patent and the '585 patent;
5. a judicial determination that STMicroelectronics N.V. and STMicroelectronics, Inc. have each willfully infringed the '720 patent, the '661 patent, the '007 patent, the '354 patent and the '585 patent, and that treble damages for such willful infringement should be awarded pursuant to 35 U.S.C. § 284;
6. that this be deemed an exceptional case and Avago be awarded its attorneys' fees and costs pursuant to 35 U.S.C. § 285; and

7. awarding Avago such other and further relief as the Court deems just and proper.

**JURY DEMAND**

Pursuant to Fed. R. Civ. P. 38 and Local Rule CV-38, Avago demands a jury trial on all issues triable to the jury.

DATED: July 20, 2010

Respectfully submitted,

/s/Sharon A. Israel

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**ATTORNEYS FOR PLAINTIFFS**



**CERTIFICATE OF SERVICE**

The undersigned counsel hereby certifies that on July 20, 2010, a true and correct copy of the foregoing SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT was electronically filed with the Clerk of Court using the CM/ECF system, which will automatically send notification of such filing to all attorneys of record.

/s/ Sharon A. Israel  
Sharon A. Israel